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NEWSLETTER OF THE LONDON CHAPTER,
ONTARIO ARCHAEOLOGICAL SOCIETY

OAS

c/o London Museum of Archaeology
1600 Attawandaron Road, London, ON N6G 3M6

March 2006 06-3

Come joins us at the ***Annual London Chapter Picnic***
and stay for ***Archaeology Day***!
Both events will be held at the
Longwoods Conservation Area Sunday July 16th.
(See inside for more information)

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The next **Speaker Night** is **Thursday September 14th.** The speaker will be **Lisa Hodgetts**, of the Department of Anthropology, UWO. She will speak on:
Prehistoric Hunter-Gathers of Southwestern Hudson's Bay.

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The meetings will be held at 8 pm at the London Museum of Archaeology, 1600 Attawandaron Road, near the corner of Wonderland & Fanshawe Park Road, in the northwest part of the city.

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ANNUAL RATES

Student	$15.00
Individual	$18.00
Institutional	$21.00
Subscriber	$20.00

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We are behind as usual with the Kewa as the cupboard is bare...so as always we solicit more articles. We will again have a **London Chapter picnic** in association with the annual Archaeology Day at Longwoods Conservation Area just east of London on County Rd. #2 near Delaware, (for information and directions see: www.lowerthames-conservation.on.ca/. LongwoodsRoadCA.htm, or contact a London OAS executive member listed on the front cover). The conservation area has an interpretative centre and an Iroquoian village reconstruction (Ska-Nah-Doht) inspired by the fact the area contains several pre-contact Iroquoian villages and hamlets. Archaeology Day is an annual event at Longwoods. Chapter members have long participated. Chris Ellis and Jim Keron will identify artifacts brought in by local residents and many other chapter members always shown u. This year the event will be held on **Sunday, July 16/06.** As always, members of the London Chapter OAS will be given free admission to the grounds by identifying themselves at the front kiosk and we expect to begin gathering around 11:00-11:30 AM in time for a picnic lunch before the archaeology day events. There will be a BBQ spit for cooking your lunch and Native games in which you can participate. So get your picnic lunches together and join us at Longwoods on a lazy Sunday in July.

We already have a September speaker for this year. It will be Lisa Hodgetts of the Department of Anthropology at the University of Western Ontario who will speak on her Paleoeskimo research in a presentation entitled: **Prehistoric Hunter-Gathers of Southwestern Hudson's Bay**. So come out at our usual meeting time on Thursday Sept. 14, 2006.

The other big event, rapidly approaching is the Annual Meeting of the Ontario Archaeological Society which will be hosted by our Chapter at **Best Western Lamplighter Inn and Conference Centre** on Wellington Road South on the evening of Friday October 27, 2006 with an evening welcoming reception and registration. Saturday October 28th will be the main day of events. Program Convenor Chris Ellis is planning two all day sessions of papers that will run concurrently from ca. 9:00 AM to 5:00 PM and already has twenty-six papers scheduled. One session, already filled, will be an all day session in honor of retiring University of Western Ontario Professor Michael Spence. It will feature presentations by numerous Ontario colleagues and students on a great diversity of topics from stone tools to forensics and focussed on sites from not only Ontario but with some Mesoamerican and South African focussed topics as well! The other session will feature a diversity of papers on Great Lakes archaeology but with an emphasis on Ontario's preceramic (Paleoindian and Archaic) as well as Historic (both First Nations and Euro-Canadian) topics. A discussion session on Avocational Archaeology is also planned as part of that session. There is room for only a limited number of additional papers so if you want to present a paper we urge you to contact Chris Ellis as soon as possible to make sure your paper can be accommodated. The Saturday evening will feature a banquet. On the Sunday October 29th, people will be left to their own devices but we are arranging for bus(es) to take people from the hotel for free tours of the **Museum of Ontario Archaeology** (formerly London Museum of Archaeology) and the adjacent Lawson pre-contact Iroquoian village. Registration information will be sent out soon with **Arch Notes**.

AN ANALYSIS OF THE FAUNAL REMAINS FROM THE HARRIETSVILLE SITE (AfHf-10)

Heather M. Henderson

Editors Note: This report was originally prepared for Dr. Howard Savage's Faunal Osteoarchaeology Class in 1986. It contains the faunal analysis for the London Chapter's test excavation at the Harrietsville site in the early 1980s (Keron 1983, 1986). The paper is reproduced here to make it available to a wider audience. An updated site report by Keron will appear in the next Occasional Publication of the London Chapter of the Ontario Archaeological Society.

INTRODUCTION

The Harrietsville site is a prehistoric occupation with surrounding earthwork, located southeast of London, Ontario in Middlesex County (Figure 1). It was first documented by David Boyle in 1896, and has unfortunately been looted frequently over the years. The site is interpreted as an early prehistoric Neutral village, and dated at about AD 1425 by ceramic seriation and one radiocarbon date of AD 1350 ± 75 (Keron 1983).

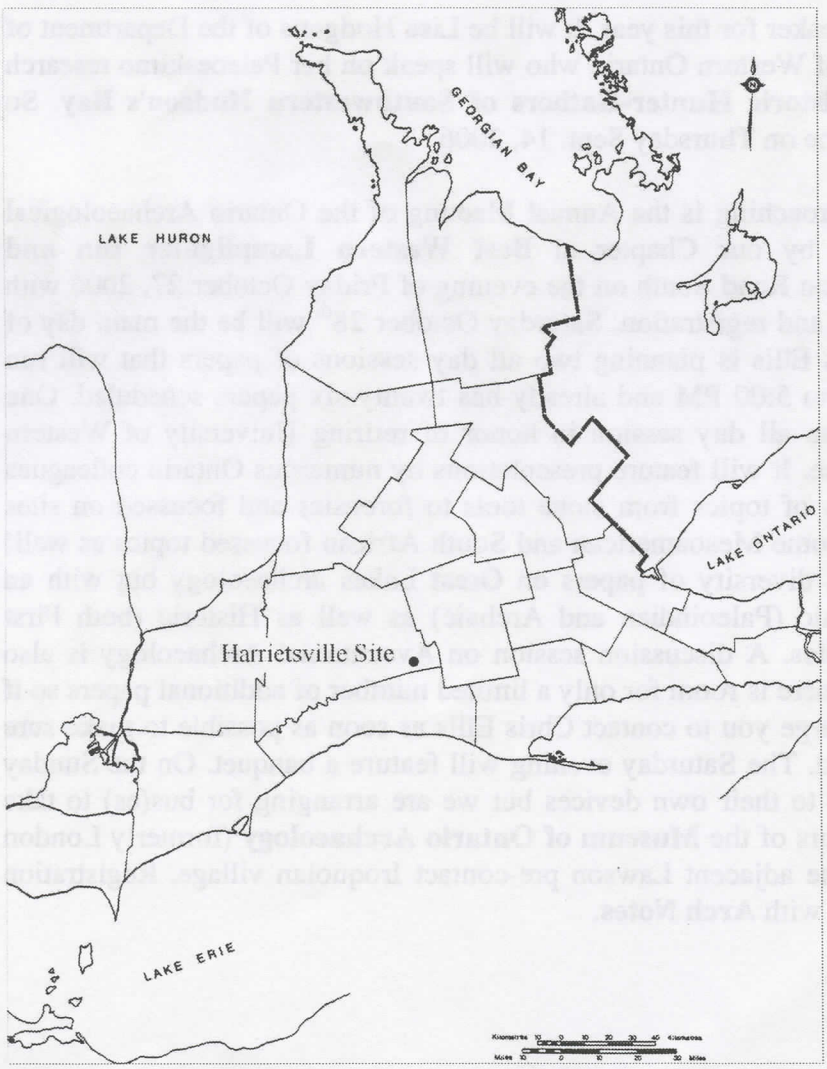

Figure 1. Location of the Harrietsville Site

The cultural setting for this site places it in a transitional time between the Middleport Substage and Late Ontario Iroquois Neutral phases. The Neutral are thought by some to have arisen as one of four historic tribes evolving out of a common Middleport cultural base (Wright 1966: 66-67). Generally, occupations feature large palisaded horticultural villages placed often on hills, far from large bodies of water.

ENVIRONMENT

The site is located on the south slope of the Westminster Moraine, part of the Mt. Elgin Ridges. These were formed during the early recession of the last Wisconsin glaciation (Chapman and Putnam 1966:39-40). The Ridges are characterized by well-drained, rolling hills, with poorer drainage in the hollows. Kettle ponds and swamps occur in places. Lake Whittaker, a large kettle lake about two kilometres southeast of the site, is one example. Immediately southeast of the site is a deep ravine through which passes a small creek emptying into the Kettle Creek drainage. Good site drainage is further facilitated by the slight slope on the north and west sides of the village (Keron 1983:3-4). Several glacial kettles are located within and near the site.

The Mt. Elgin Ridges are based on clay till, and Huron clay loam soils are commonly found in the region, although some areas, the Harrietsville site being one of them, are overlain by sand (Chapman and Putnam 1966:234). Overall, the well-drained, well-aerated soil is advantageous for agriculture. Generally, soils in this region are neutral to slightly acid, lying above an alkaline parent material.

The site is in the broad-leaved deciduous Carolinian forest zone, and pollen records from Pond Mills Pond a few miles to the northwest, indicate no major regional changes in the last 7,000 years (McAndrews 1980:324). Analysis of wood charcoal from the site revealed dominance of sugar maple, beech and white elm (Fecteau 1983:15). These findings support the early historic records that document a maple/beech climax forest cover. Present environments in the area consist of cleared agricultural land with intermittent woodlots and hedgerows. The site itself was under a coniferous plantation at the time of excavation (Keron 1983:4).

Warm summers, mild winters and a long growing season with fairly reliable rainfall generally characterize the climate of southwestern Ontario. This provides good agricultural conditions, and a variety of native vegetation and resident wildlife. The frost-free period provides a growing season of about 150 days, mid-May to early October (Brown et al. 1968:25-27). Although an annual precipitation of about 90 cm. with half of this during the growing season may be slightly inadequate in some years (*Ibid*), the region currently supports a thriving agricultural community based on corn and other crops. Botanical evidence indicates that the prehistoric occupants also maintained a settled horticultural lifestyle based on corn, beans and sunflower as well as the use of numerous wild plants (Fecteau 1983:14).

EXCAVATIONS

The faunal sample in question was excavated during the 1981 and 1983 field seasons by the London Chapter of the Ontario Archaeological Society, under the supervision of James Keron and William Fox. Test trenches revealed heavy disturbance by looters and by ploughing. The presence of woodchuck burrowing had similarly caused disruption and redeposition (Keron 1983:7).

The 1981 excavations involved the excavation of two 2 by 2 metre and three 1 by 1 metre squares in Midden 1 and two 2 by 2 metre squares in Midden 2. Flotation samples were taken from undisturbed layers of Midden 1.

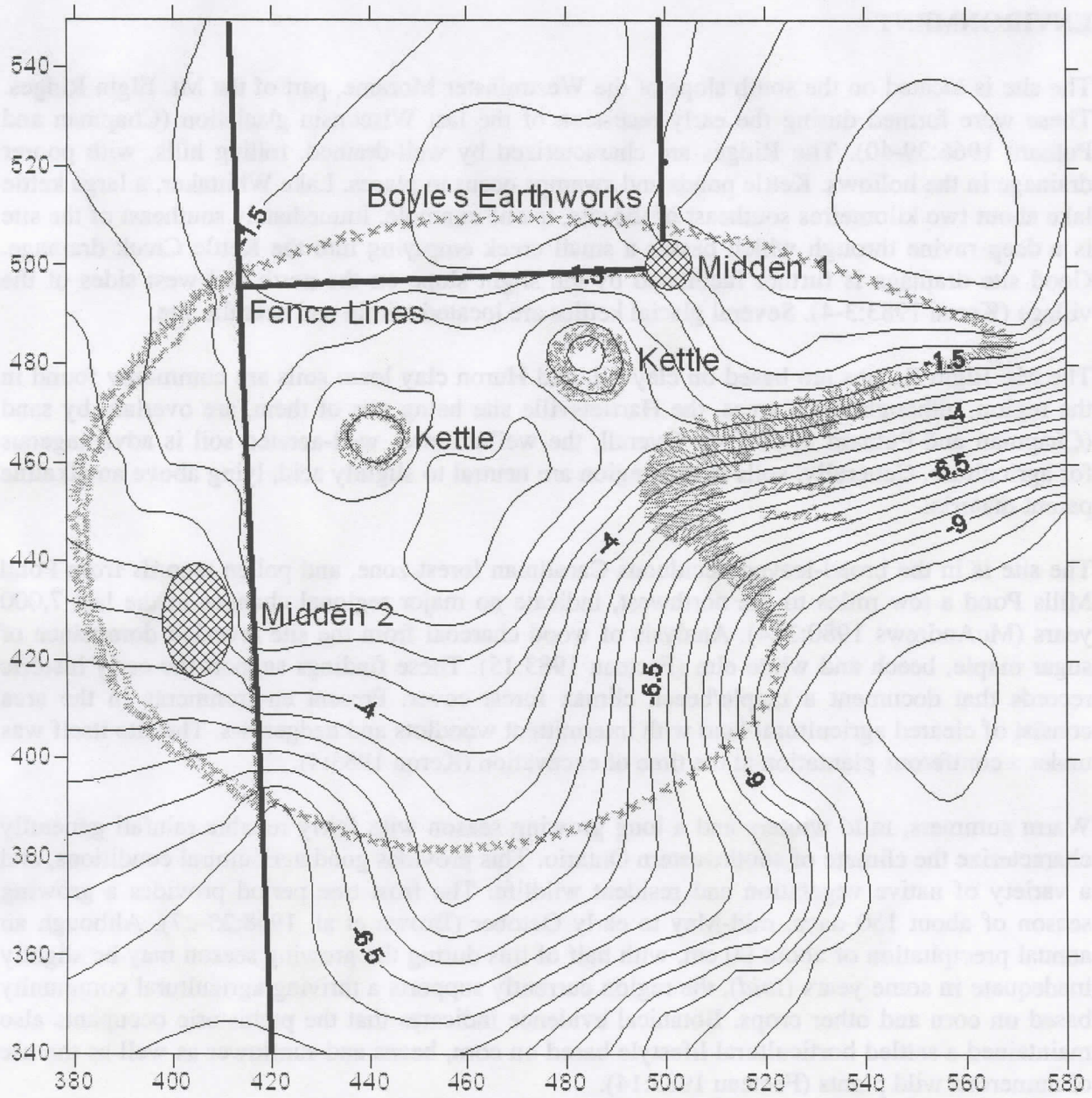

Figure 2. Harrietsville Site Excavations

In 1983, Midden 2 was more extensively tested, with four more 1 by 1 metre units added. Flotation samples were taken from undisturbed layers of one of these squares (436N 404E). Figure 2 shows a contour map of the site with the location of the two middens and the fence lines. Superimposed on this is the outline of the site features recorded by David Boyle (1896). The earthwork locations have been modified from Boyle's map to correct for an error. For details on this modification see Keron (n.d.).

FAUNAL FINDINGS

The bone sample from Harrietsville consists of 12 lot bags and 2 flotation samples from Midden 1, and 24 lots and a large flotation sample from Midden 2. Flotation samples include most of the

heavy and light fractions, and were taken from the lower, undisturbed layers. (These data are in an Appendix to the original report and can be obtained on request).

Analysis Procedures

The faunal assemblage was examined by first separating the contents of each lot bag into identifiable and unidentifiable groupings. The unidentifiable specimens were then separated into class groupings where possible and those fragments exhibiting heat alteration noted. Identifiable fragments were separated into classes as well, and mammals into large and small size groupings. Identifications were made using the Faunal Osteo-archaeology reference collection of the University of Toronto Anthropology department. Each specimen was identified to the lowest possible taxon, and catalogued with the Borden number and a catalogue number where physically possible. Tables were compiled, summarizing classes and species identified (Tables 1,2 and 3). Minimum numbers of individuals were calculated largely on the basis of the frequency of an individual element, taking into account the siding and portion of the bone represented, as well as the age estimation.

Using the MNI, meat poundage figures for significant species were determined using usable meat estimates cited in D'Andrea et al. (1984). Interpretations of seasonality, catchment, habitat, butchering techniques, and site occupation are made based on species present and the element distribution.

General Findings

It must be noted that the bone material under examination here is a small sample from two middens on the site. In this context, it may or may not be representative of the site as a whole. If the middens are general purpose catch-all areas, a sampling of archaeological material from a midden might be taken to be roughly representative. However, since the effects of taphonomy and of cultural preference cannot be determined, it must be assumed that, even with the more complete recovery possible with flotation, species may be under-represented, over-represented, intrusive, or missing, when in fact they had been utilized by the site occupants. The analysis results are to be viewed in this context.

A total of 2637 fragments were recovered during the 1981 and 1983 excavations. This figure includes 149 terrestrial gastropods, assumed to be intrusive, and not included in subsequent calculations. A total of 356 (13.5%) specimens were identified to zoological order or lower. This small sample is generally well preserved, although highly fragmented. The general trend is toward straight line fractures typical of post depositional attrition, rather than the curvilinear pattern caused by fragmentation in the fresh state. This may be the result of the presence of a large percentage of the bone material from ploughzone contexts.

The sample yielded seven classes of fauna (summarized in Table 1), consisting of at least 36 species (listed in Table 3). Unidentifiable remains were less easily assigned to class especially in the case of small sized mammals, which may be difficult to distinguish from bird. The freshwater clam fragments that were not identifiable are consistent with the *Elliptio* sp. identified, but their fragmentary nature precludes assigning the taxon.

Table 1. Summary of Faunal Classes*

Class	NISP	% of TOTAL	Identified Below Class	% of Class Identified	% of Identified Elements
Mammalia	1793	68	246	13.72	69.1
Aves	36	1.4	16	44.44	4.5
Osteichthyes	366	13.9	44	12.02	12.3
Amphibia	116	4.4	26	22.41	7.3
Reptilia	15	0.6	13	86.67	3.7
Pelecypoda	109	4.1	11	10.09	3.1
Gastropoda	149	5.6			
Unidentifiable	53	2			
TOTAL	2637	100	356		100

*Note: Gastropoda and unidentifiable not included in percent calculations

Evidence of charring or calcination was found in 39.9% (1053) of the total sample, of which 1017 (96.6%) were unidentifiable. The 37 identified elements with evidence of heat exposure consisted of 15 white-tailed deer, 1 cottontail, 1 black squirrel, 1 red squirrel, 2 woodchuck, 2 beaver, 1 muskrat, 2 carnivore/canids, 1 black bear, 4 raccoon, 1 catfish, 2 ruffed grouse and 2 turtles. Table 2 summarizes the charred remains by class.

Table 2. Summary of Total Unidentified Fragments by Class and by Midden

CLASS	MIDDEN 1			MIDDEN 2		
	HEATED	NOT HEATED	TOTAL + (%) UNID.	HEATED	NOT HEATED	TOTAL +(%) UNID.
Mammalia, Large	98	48	146	285	174	459
			16.70%			32.80%
Mammalia, Small—Medium	136	179	315	410	215	625
			36%			44.60%
Aves	1	8	9	-	11	11
			1%			0.80%
Osteichthyes	24	123	147	35	140	175
			16.80%			12.50%
Amphibia	1	60	61	1	28	29
			7%			2.00%
Reptilia	-	-	-	2	-	2
						0.10%
Pelecypoda	15	54	69	5	22	27
			7.90%			1.90%
Gastropoda	-	121	121	-	27	27
			13.80%			1.90%
Unidentifiable to Class		7	7	4	42	46
			0.80%			3.30%
TOTALS	275	600	875	742	659	1401
	31.40%	68.60%	100%	53.00%	47.00%	100%

The high frequency of charred material is consistent with a midden interpretation. The class distribution suggests that the mammals were most consistently cooked in a manner that encouraged calcination, especially of extremity bones. Waugh (1916:134-136) notes that mammals, frogs and birds were roasted or broiled by Iroquoian groups.

The two midden samples were compared for taxonomic class distribution, charred bone and species occurrence, in order to determine any functional or seasonal differences (Tables 2 and 3).

There is a greater percentage of heat-altered bone in Midden 2 and some differences in class percentages among fish and mammals. Midden 2 has more mammal and less fish unidentified, but this pattern is opposite when identified species are examined. Midden 1, apparently on the edge of the site, at the embankment, has more identified rabbit, squirrel, woodchuck, small rodents and varied bird species. Cottontail was not identified in Midden 2, and channel catfish and drum were not found in Midden 1. Deer remains are significantly greater in Midden 2. Both middens have intrusive domestic species from post-contact occupation of the site, reflecting the disturbance in the upper levels already noted.

Table 3. Summary of Elements Identified Below Class

TAXON	Midden 1 NISP	Midden 2 NISP	Total NISP	% of Identified Elements	MNI
MAMMALS					
Eastern cottontail *(Sylvilagus floridanus)*	10		10	2.9	2
Black squirrel *(Sciurus carolinensis)*	4		4	1.2	1
Sciurus sp.	1	1	2	0.6	1
Red squirrel *(Tamiasciurus hudsonicus)*	2		2	0.6	1
Woodchuck *(Marmota monax)*	68	31	99	28.1	6
Eastern chipmunk *(Tamias striatus)*	3	1	4	1.1	2
Beaver *(Castor Canadensis)*	2	4	6	1.7	1
Mouse *(Peromyscus* sp.)	1		1	0.3	1
Muskrat *(Ondatra zibethicus)*	4	1	5	1.4	1
Meadow vole *(Microtus pennsylvanicus)*	2		2	0.6	1
Rat *(Rattus norvegicus)*	1		1	0.3	1
Carnivora sp. (med.)		4	4	1.1	1
Carnivora sp. (small)	2		2	0.6	1
Canidae sp.	1	1	2	0.6	1
Black bear *(Ursus americanus)*	4	7	11	3.1	1
Raccoon *(Procyon lotor)*	6	10	16	4.4	1
Fisher *(Martes pennanti)*		1	1	0.3	1
Striped skunk *(Mephistis mephistis)*	4		4	1.1	1
Horse (*Equus caballus*)		1	1	0.3	1
White—tailed deer *(Odocoileus virginianus)*	12	52	64	18.2	2
BIRDS					
Red—tailed hawk *(Buteo jamaicensis)*	1		1	0.3	1
Domestic chicken *(Gallus gallus)*	1		1	0.3	1
Wild turkey *(Meleagris gallopavo)*	1	3	4	1.1	1
Ruffed grouse *(Bonasa umbellus)*	5	3	8	2.3	1
Owl cf. Barred owl (Strigidae cf. *Strix varia)*	1		1	0.3	1

TAXON	Midden 1 NISP	Midden 2 NISP	Total NISP	% of Identified Elements	MNI
Corvidae sp. cf. jay (cf. *Cyanocitta cristata*	1		1	0.3	1
REPTILES					
Painted turtle *(Chrysmys Picta)*	8	1	9	2.6	1
Turtle (Emydidae sp).	3	1	4	1.2	1
AMPHIBIAN					
Frog or Toad *(Anura* or *Rana* sp).	21	5	26	7.4	5
FISH					
Minnow cf. Creek chub (Cyprinidae sp cf. *Semotilus atromaculatus)*		1	1	0.3	1
Sucker *(Catostomus* sp.)	4	9	13	3.7	2
Redhorse sucker *(Moxostoma* sp.)		1	1	0.3	1
Larger Catfish (*Ictalurus* sp.)	1	3	4	1.1	1
Smaller Bullhead *(Ictalurus* sp.)	2	2	4	1.1	1
Channel catfish *(Ictalurus punctatus)*		10	10	2.8	3
Perch (Percidae sp.)	4	3	7	2	2
Freshwater Drum *(Aplodinatus grunniens)*		4	4	1.1	1
MOLLUSCS					
Lady finger clam *(Elliptio dilatatus)*	8	2	10	2.8	5
Prunum sp.	1		1	0.3	1
HOMO SAPIENS		1	1	0.3	1
TOTALS	189	163	352	100.1	

An attempt at differential level analysis was cursory, as there was inconsistency in the recording of levels between the 1981 and 1983 excavations. In general, the ploughzone appeared to contain a greater percentage of the fragments when compared to all other known levels combined (Table 4).

Material Recovered by Flotation

Flotation helps to eliminate one of the many biases of archaeological sampling, that of small objects being lost in the back dirt. Clason and Prummel (1977) have documented this, although they questioned whether the extra time spent on identification and analysis was worthwhile. In the case of the sample under examination, it has had interesting results due to the documentation of intrusive small animal species.

Table 4. Comparison of Bone Frequencies in Ploughzone to Other Excavated Levels

Sample		Ploughzone	All Other Levels	Unknown Levels
Unidentified Elements	N	1021	707	460
	%	46.7	32.3	21
Identified Elements	N	195	118	32
	%	56.5	34.2	9.3

Inclusion of light and heavy flotation fractions increased the total sample fragments by 33.5% and the identifiable elements by 23% (Tables 6 and 7). As also seen in a comparative study by Waselkov (1984), the material recovered from flotation, contributed

significantly to the bone sample, especially for fish species. Bone fragments recovered by flotation made up 58.7% of the Midden 1 total and 26.4% of Midden 2. The Harrietsville flotation material differentially revealed Percidae sp., Cyprinidae sp., and a small *Corvus* sp., possibly blue jay, as well as identifying red squirrels, bullheads and redhorse from their respective taxonomic families. The relative importance of fish, amphibians, small mammals and birds was increased. Although these small species are of questionable economic significance, they contribute to seasonality, habitat and cultural data.

Table 5. Summary of All Charred Fragments by Class

CLASS		CHARRED FRAGMENTS	
		N	% OF TOTAL
Mammalia	Large	399	38.0
	Small—Med.	561	53.3
Aves		3	0.3
Osteichthyes		60	5.7
Amphibia		2	0.2
Reptilia		4	0.4
Pelecypoda		20	1.9
Unidentifiable		4	0.4
TOTAL		1053	100

Table 6. Summary of Flotation vs Regular Recovered Elements Identified Below Class

TAXON	FLOTATION	EXCAVATION	TOTAL
Cottontail		10	10
Squirrel sp.	5	3	8
Woodchuck		99	99
Chipmunk	1	3	4
Beaver		6	6
Mouse	1		1
Muskrat		5	5
Vole		2	2
Rat		1	1
Carnivore sp.		6	6
Canidae sp.		2	2
Bear	1	10	11
Raccoon	4	12	16
Fisher		1	1
Skunk		4	4
Horse		3	3
Deer	5	62	67
Hawk		1	1
Chicken		1	1
Wild Turkey		4	4
Grouse	4	4	8
Owl		1	1
Blue Jay	1		1
Turtle	3	10	13
Frog or Toad	23	3	26
Minnow	1		1

TAXON	FLOTATION	EXCAVATION	TOTAL
Sucker	12	2	14
Catfish/Bullhead	12	6	18
Percidae	7		7
Drum		4	4
Elliptio sp	2	8	10
Marine snail		1	1
Human		1	1
TOTAL	82(23.0%)	275(77.0%)	357(100%)

Comparisons of the floated material recovered from the two middens (Table 7) reveals a fairly similar relative distribution of classes except in the small to medium sized mammals, where Midden 1 has almost double the percentage. This trend is reflected also in the identified material from Midden 1 as a whole (Table 3). However, an examination of Table 2 reveals that the addition of the non-floated material to the totals tends to even out the relative differences.

Table 7. Summary of Flotation Material by Class and by Midden

CLASS	Midden 1		Midden 2		Total	
	N	%	N	%	N	%
Mammal - large	24	4.7	34	9.2	58	6.6
Mammal - small-medium	245	47.7	91	24.6	336	38.1
Bird	10	1.9	9	2.4	19	2.1
Fish	144	28	135	36.5	279	31.6
Amphibian	56	10.9	49	13.2	105	11.9
Reptile	3	0.6	1	0.3	4	0.4
Clams	8	1.6	4	1.1	12	1.3
Snails	17	3.3	1	0.3	18	2
Unidentifiable	7	1.4	46	12.4	53	6
TOTAL	514	100.1	370	100	884	100
% of Total Midden	58.70%		26.40%			

Archaeological Aspects

Quantification

The calculation of minimum numbers of individuals and of available meat weights for the species represented were carried out as an attempt to quantify their relative importance. These methods, in particular the meat weight estimation, are inherently problematic and must be interpreted with this in mind.

Minimum numbers of individuals are summed in Table 3. The bone sample is small and thus most species are represented by only one MNI. Woodchuck elements appear to represent 6 almost complete individuals. Deer appears to be represented by only 2 animals, and bear by only 1, but the meat weight calculations (Table 8) indicate that deer and bear are the most significant food species sources in the sample. The middens have not been separated for the MNI calculation due to the small size of the sample.

Meat weight estimates are summarized in Table 8 for identified species that may be of archaeological significance. These are presented only as a very rough relative quantification. As Smith (1975) has pointed out for white-tailed deer, usable meat per individual, for any species, varies depending on its geographical location, age, sex, season, available forage and population density. These factors make meat estimation a complex task and thus the figures presented here cannot be taken at face value. In general, Table 8 illustrates that even one large animal may have far greater resource potential than several smaller species.

For fish, molluscs, and other small species where complete bones are often recovered, metrics may allow closer estimates of meat weight. However, these have not been attempted for this analysis, as most bones were immeasurable due to their fragmentary state.

Table 8. Estimated Meat Weights of Significant Species*

SPECIES	MNI	USEABLE MEAT PER INDIVIDUAL (Kg)	TOTAL USEABLE MEAT (Kg)	% OF TOTAL MEAT
Cottontail	2	0.8	1.6	0.7
Black Squirrel	1	0.4	0.4	0.2
Red Squirrel	1	0.1	0.1	0.04
Woodchuck	6	2.5	15	6.7
Eastern Chipmunk	2	0.05	0.1	0.04
Beaver	1	14.3	14.3	6.3
Black Bear	1	95.3	95.3	42.3
Raccoon	1	7.9	7.9	3.5
Fisher	1	2	2	0.8
Skunk	1	2.3	2.3	1
White-tailed Deer	2	38.6	77.2	34.2
Red tailed Hawk	1			
Wild Turkey	1			
Ruffed Grouse	1	0.5	0.5	0.2
Blue Jay	1	0.04	0.04	0.02
Painted Turtle	1			
Frog and Toad	5	0.05	0.25	0.1
Minnow	1	0.05	0.25	0.1
Suckers	2	0.8	1.6	0.7
Redhorse	1	0.8	0.8	0.4
Bullhead	1	0.4	0.4	0.2
Channel Catfish	3	1.1	3.3	1.5
Perch	2	0.1	0.2	0.09
Drum	1	0.7	0.7	0.3
Freshwater Clam	5	0.01	0.05	0.02
TOTAL			224.29 Kg	

* Useable meat weights per individual are taken from D'Andrea et al. (1984:234-5); except for minnow and blue jay, which are inferred from perch and sapsucker.

Mammals make up 68.0% of the total sample, and are represented by at least 17 species. Deer and bear appear to be the most significant food species. Extremity elements dominate the deer assemblage (Table 9), and show the most incidence of charring and cut marks. This pattern suggests butchering elsewhere, with transportation of certain body parts back to the site. Pelvic

and pectoral elements are missing entirely and large long bones are minimally represented. Although the high frequency of broken and calcined large animal bone may indicate deliberate marrow or bone grease extraction, the rectilinear fragmentation patterns do not support this interpretation. Foot and lower leg bones may have a greater tendency to burn during roasting due to the lack of protective flesh.

The deer sample is represented by one adult and at least one immature animal of approximately 8-9 months determined by the presence of one unerupted tooth (Severinghaus 1949:209-10). Extremity and vertebral elements with unfused epiphyses may be from an animal of similar age (Purdue 1983). This suggests a mid-winter kill if fawns are born in May-June (Banfield 1974:393).

Table 9. Distribution of White-tailed Deer Elements by Body Region and by Midden

BODY REGION	TOTAL MIDDENS		CHARRED ONLY	
	Midden I	Midden II	Midden I	Midden II
Cranial	1	2		
Dental	1	9		
Axial	1	7		2
Pectoral				
Pelvic				
Appendages (fore)	4	10	1	2
Appendages (hind)	3	12	1	4
Appendages (ambiguous)	3	12	1	3
TOTALS	13	52	3	11

Deer are known to have provided a high proportion of the diet of the historic Neutral people (Prevec and Noble 1983). This species with its preference for forest edge and open habitats would have done well in the vicinity of pre-contact agricultural village disturbance as well.

Table 10. Distribution of Woodchuck Elements by Body Region

BODY REGION	N
Cranial	6
Dental	6
Axial	25
Pectoral	6
Pelvic	7
Appendage (fore)	24
Appendage (hind)	23
Appendage (ambiguous)	2
TOTAL	99

Woodchuck, the most numerous species in the site, is problematic. Although it is noted to have been an Iroquoian food resource (Waugh 1916:135), its burrowing habits allow ample opportunities for site intrusion, and the Harrietsville site is noted to have been extensively disturbed by these animals. Table 10 shows a distribution of elements consistent with the presence of six fairly complete individuals. A large number of the woodchuck elements also appear better preserved than most of the deer fragments.

Keron (1983) notes that Midden 1, in particular, has been disturbed by woodchuck burrowing. The differential distribution of elements between Midden 1 and 2 (Table 11)

may reflect this recent activity as Midden 1 samples contained more that twice as many woodchuck fragments as Midden 2. Although the activity of burrowing rodents has been shown to have a greater effect on vertical displacement of artifacts than on horizontal displacement, the remains of these animals are often found in tunnels, nesting chambers and on the surface where they are left by predator activity (Bocek 1986:590). The situation is further complicated by the presence of two calcined femur fragments and a humerus with possible cut marks. There appears to be a mixture of archaeological and intrusive material that cannot be sorted out satisfactorily. The relative importance of woodchuck must therefore be considered carefully.

A brief survey of Neutral and other pre-contact southern Ontario sites reveals no clear pattern in the use of woodchuck. Results range from a NISP of 517 at Moyer (Wagner et al. 1973), to NISP of 89 (17% of the identified species) at Ivan Elliot site (Fram 1985), to no significant presence in sites of Historic Neutralia (Prevec and Noble 1983).

Table 11. Comparison of Woodchuck Elements by Midden

Woodchuck Elements	Midden 1	Midden 2	Total
NISP	68	31	99
% of total identifiable in each midden	36	19	

The favoured habitat of this ground squirrel is well-drained open land with ridges, pasture and fields (Woods 1980:21). Thus the woodchuck would have thrived in the mixed open field environment of early horticulturalists almost as well as it does in the more extensive clearing of the modern farm landscape. Apparently palatable, it would have provided an abundant, easily accessible food resource. In addition, it may have been as much of a garden pest in earlier times as it is now, and its exploitation would have thus provided the secondary function of reducing the hazard to gardens and crops. Woodchuck in archaeological context likely indicates summer seasonality due to its hibernation from late October to March (Woods 1980:22).

Black bear was not found by Prevec and Noble (1983) to be a significant species on historic Neutral sites. Bear is represented at Harrietsville by 11 elements, one charred, with no clear exclusion of body parts. A species of forests and swamp edges, black bear is unavailable from November to April due to hibernation (Banfield 1974:306). One individual contributes significantly to the meat weight total.

Raccoon is also relatively less available in the winter, although it does not go into a true hibernation. Two immature specimens may narrow the seasonality down to a fall kill. Raccoon was found by Prevec and Noble to be a significant species in historic Neutral sites but was present in smaller numbers prehistorically (1983:45). Raccoons may inhabit forests or isolated copses near water (Banfield 1974:315). As omnivorous scavengers they do well in the company of human habitation.

Eastern cottontail also occurs as a number of well-preserved elements, all in Midden 1, one of which exhibits carnivore gnawing. This pattern shows similarities to the woodchuck remains and a recent intrusion cannot be ruled out. The immature elements suggest a spring - fall kill (Banfield 1974:78).

Grey or black squirrels became important in later Neutral economies for their skins (Prevec and Noble 1983), but are not will represented at Harrietsville. The squirrel species indicate wooded environments or copses, and are available most of the year but are less visible in winter.

Muskrats are available near streams and ponds and provide fur and meat. Striped skunk has also been cited as a food resource, although it is noted as being used for medicinal purposes (Waugh 1916:134).

There is a distinct absence of identifiable dog at this site, although eight carnivore and/or canid fragments might be considered dog. Prevec and Noble note that dogs and canis sp. are always found on Neutral sites, up to a 12% occurrence (1983:45), and indicate a food resource. Due to the small site sample examined here, the presence of dog will require further investigation.

Birds

No indisputable migratory species were identified. Of the six species of birds identified, wild turkey and ruffed grouse are the most important. As year round species, both inhabit forest edge habitats and/or deeper forest. Turkey was apparently not an important species for the historic Neutral. However, as a large bird, travelling in flocks, it would have been conveniently exploitable (Prevec and Noble 1983:46).

Waugh notes that owls were eaten and their oil was used for medicinal purposes (1916:135). The one owl element identified may be a Barred owl, indicating winter seasonality. Blue jays and hawks may have been taken for their feathers. These were represented by one element each.

Reptiles and Amphibians

Reptiles and amphibians indicate summer seasonality as they hibernate in the mud over the winter. Turtles are represented by carapace fragments only, and fall into the size class for the painted turtle. This species has a habit of sunning on rocks and shores of ponds, making it conspicuous for capture.

All amphibian remains appear to be frogs or toads. Two of these are calcined. Waugh notes that some frogs were considered to have medicinal or magical significance and that the bullfrog (*Rana catesbiana*) and leopard frog (*R. pipiens*) were eaten by historic Iroquoian groups. However, small toads and frogs could easily be intrusive in the upper levels.

Fish

Fish comprise 13.9% of the assemblage and 12.3% of the total identified fragments. Only 12% of fish was identifiable below class. The class is represented by suckers, bullheads, channel catfish, perch sp., drum and possibly creek chub. Most of these inhabit medium to large rivers and lakes, although suckers and chub may be found in smaller streams. All are spring spawners with the exception of drum which may spawn until September. Fish are usually represented on Iroquoian sites only by small percentages, even when flotation samples are included. However, this may not be representative of their actual importance, as the bones may not preserve well, especially

after cooking. Waugh (1916) notes that fish were prepared by boiling, roasting, drying and smoking.

Clams

Ample evidence for the exploitation of *Elliptio* sp. exists in almost every lot sample. Two valve fragments also exhibit straight line, knife sized fractures near the hinge, possibly evidence for a technique for opening the closed clam. This species inhabits larger streams, rivers, and lakes. Although a highly visible species class in archaeological sites, freshwater mussels would not have contributed significantly to the diet in nutrients or in volume (Parmalee and Klippel 1974).

Intrusive Species

Since a large amount of this sample came from the ploughzone, the discovery of recent intrusive species was not surprising. An incisor and a metartarsal of a horse, as well as a section of a chicken synsacrum, were identified. These have certainly been deposited since European settlement, as has the Norway rat mandible.

The mouse and meadow vole mandibles may be intrusive, but they represent durable portions of the skeleton, and the species are cited as having been used as a food source by the Huron (Waugh 1916:135). Woodchuck has been discussed above as a problematic species on this site.

Extirpated Species

Several species are represented which have since been extirpated from southwestern Ontario. Black bear and fisher are now rarely found south of Algonquin Park (Downing 1948). Wild turkey has also not been present in Ontario since the 19th century (MacCrimmon 1977:26-27). This may be due loss of preferred forest habitat in combination with the over-hunting of wild turkey historically.

Bone Alterations

Evidence for the human alteration of bone at this site lies mainly in the large percentage of charred material. Several bone artifacts known to be recovered (Keron, personal communication), were not available for analysis, but the sample yielded some cultural information.

One small deer phalanx from Midden 1 appeared to have a hole drilled through its distal articular surface, in the manner of alteration to make a cup and pin game. This element was, however, quite eroded and pitted, possibly due to its passage through the digestive tract of an animal (possibly a dog). Cut marks were found on two radius portions, one metatarsal and one astragalus of deer. One long bone fragment from an unidentifiable large to medium mammal appears to have been the distal end of an awl.

One juvenile woodchuck humerus from Midden 1 exhibited possible cut marks and one catfish pectoral spine appears to have been polished.

One *Elliptio* clam valve in Midden 2 appears to have been worn on the edge, as though used as a scraper. Two shells exhibit the sort of fracture that could have been caused by insertion of a knife blade near the umbo in order to separate the valves.

One small marine gastropod of *Prunum* sp. from Midden 1 was also found, with a clean slice taken off the apex, perhaps for its use as a bead. The presence of this artifact, far north of the natural range of the species, indicates, a connection of these people to a wide ranging trade network, extending south to the southern states.

Natural modification of bone was found infrequently, in the form of erosion, root etching, and grooving caused by insects. Two woodchuck bones exhibited localized bone swelling and porosity, with no obvious cause. One woodchuck mandible exhibited bone loss and reaction around the lower incisors perhaps due to soft tissue infection.

One cottontail innominate appears to have been gnawed by a small carnivore. One deer metatarsal, a bear tibia and a raccoon humerus exhibited some rodent gnawing.

Seasonal Inferences

Little specific seasonal differentiation is possible from this faunal sample. All species (except the possible Barred owl), are year round inhabitants of southern Ontario, although turtles, frogs, and clams are unavailable for winter collection, as are raccoon, bear, woodchuck and chipmunk. Most of the fish species are spring spawners, and perhaps most easily caught at that season, but they would also have been available at other times of the year.

The presence of one unerupted cheek tooth and several unfused epiphyses of white-tailed deer, suggest a winter kill of an immature individual in its first year.

Immature and juvenile woodchucks are present, as evidenced by juvenile cortex and unfused epiphyses. No data was available for bone development of woodchuck, but they are born April to May and are full grown by the second summer (Woods 1980:22). The bone evidence suggests summer to fall seasonality. Similarly, the presence of immature cottontail and black bear elements also suggests summer to late fall. However, in general, the evidence does not preclude a year round occupation (Figure 3).

The botanical evidence from the site indicates a horticultural subsistence based on maize and beans with supplementary collection of wild fruits and greens (Fecteau 1983). Since maize, beans, fruits and nuts can all be stored for the winter, the plant evidence also does not dismiss a year round occupation.

Environmental Inferences

The habitat preferences of species recovered from the site range from climax hardwood forest to forest edge to open clearings. Aquatic environments ranging from small streams and marshes to larger rivers and shallow lakes are also implied (Table 12). Faunal food preferences suggest natural vegetation in the catchment area ranging through deciduous shrub, cedar browse and

herbage for deer; aspen, willow and alder for beaver; nut and seed bearing trees for squirrel, chipmunk and turkey; and wild fruits for deer, bear, turkey, squirrel, and raccoon (Banfield 1974).

Bear and fisher in particular prefer coniferous forest habitats. The wood charcoal evidence (Fecteau 1983) does not suggest the presence of coniferous forest in the vicinity. However, white pine stands tend to colonize areas that have been burnt over, or cleared for human agricultural pursuits in southern Ontario (Bowman 1974). Such stands may have provided habitat for these species.

Table 12. Habitat Preferences of Significant Identified Species*

SPECIES	Deciduous Forest	Open and Forest Edge	Coniferous Forest	Aquatic	
				Small Streams	Larger Bodies and Rivers
Cottontail		x			
Black Squirrel	x				
Red Squirrel	x	x			
Woodchuck		x			
Eastern Chipmunk	x	x			
Beaver				x	
Muskrat				x	
Black Bear	x	x	x		
Raccoon	x			x	
Fisher	x		x		
Skunk	x	x	x		
White-tailed Deer	x	x			
Red Tailed Hawk		x			
Wild Turkey	x	x			
Ruffed Grouse		x	x		
Blue Jay		x			
Painted Turtle				x	
Frogs and Toads				x	x
Hi n nows				x	
Suckers -				x	x
Redhorse					x
Bullhead					x
Channel Catfish					x
Perch					x
Drum					x
Clams					x

*References: See Figure 5 and Berg (1985)

The aquatic species present suggest small to large streams, marshes and shallow lakes. The site is in the Kettle Creek drainage, where minnows and suckers would be available, and situated about two kilometres northeast of Whittaker Lake, a small shallow kettle lake, where drum and possibly perch and bullheads might be obtained. The Thames River, a little over ten kilometres to the north may have provided the channel catfish, redhorse and *Elliptio*. It is also possible that Kettle Creek was once larger than at present, and that these species may have been available

more locally in AD 1400.

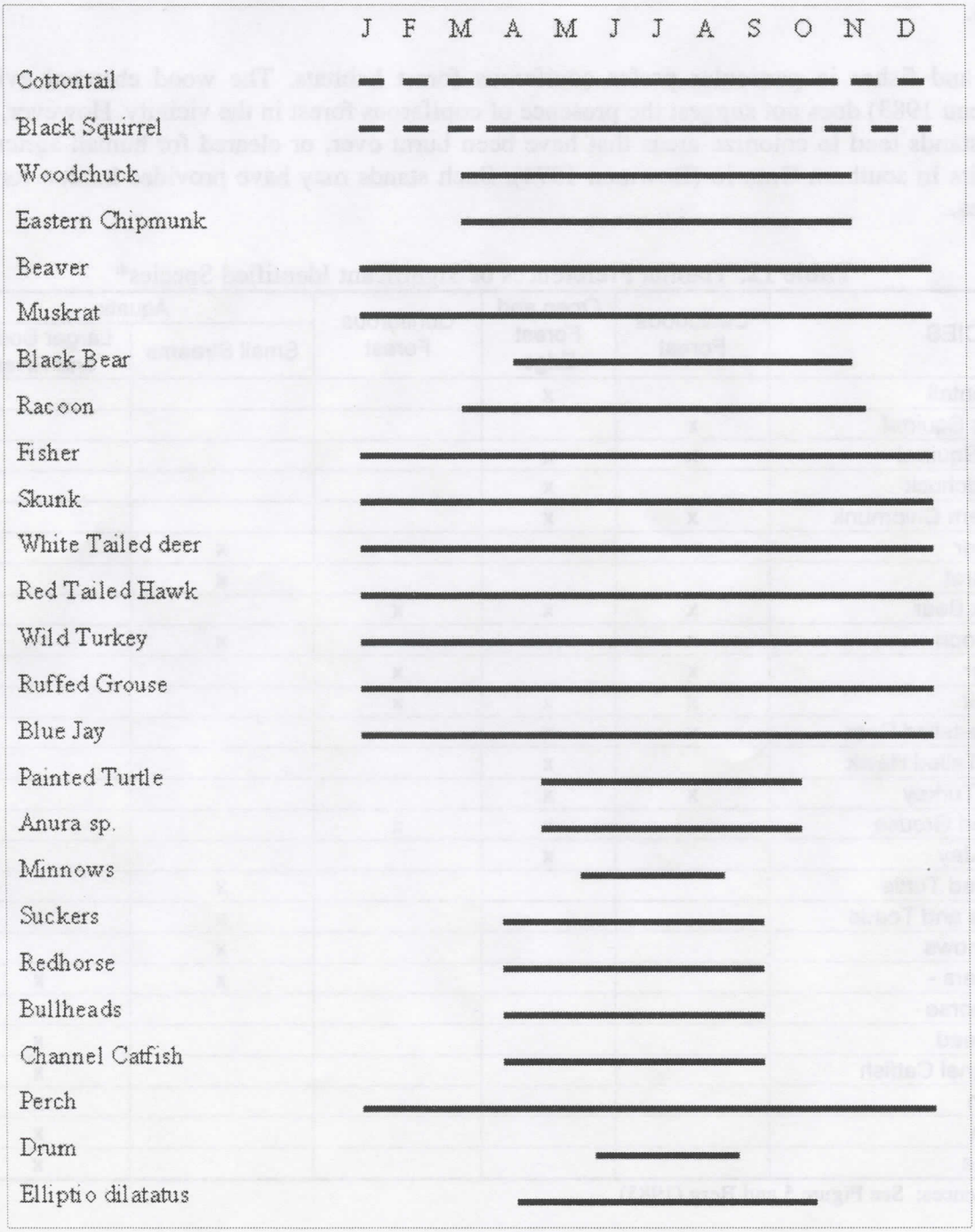

Figure 3. Seasonal Availability of Significant Idenfified Species
(based on Scott & Crossmand (1973), Banfield (1974), Godfrey (1966), Clarke (1981))

The gastropod assemblage recovered has not been extensively analyzed here. The main species present, *Anguispira alternata*, *Triodopsis albolabris* and *T. tridentata,* indicate possible habitats ranging from moist woodlands to drier, more open conditions (Latta 1971). The larger numbers and better preservation of *A. alternata* might reflect a temporal change of site environment from

more wooded to more open, but this is speculative.

In general, the species assemblage indicates a mixed catchment environment with predominance of well-watered deciduous forest and forest edge habitats. Species such as woodchuck thrive in anthropogenically created open areas. No large differences from the present site habitat are implied, even with its more extensive anthropogenic disturbance. These findings are in keeping with the regional pollen profiles of the 15th century (McAndrews 1980).

CONCLUSIONS

The range of species recovered in this sampling of the Harrietsville site indicates subsistence based on large and small game hunting, possibly trapping or snaring of small game, and fishing. Combined with the evidence for plant food utilization, a highly flexible subsistence strategy is revealed with a basis in maize and bean horticulture.

The site occupants made use of many of the animal resources within the site catchment, exploiting most of the available habitats. Deer and bear may have been particularly important. Especially in winter, deer would have been one of the few substantial food resources available.

Evidence from faunal analysis in combination with the botanical analysis, suggests a year round occupation of a horticultural village site. Intra site activity differentiation by faunal distribution is inconclusive.

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	Membership Account	Publications Account	Totals
Total Bank Balances Jan 1, 2005 from 2004 Financial Statement	1995.55	$7,141.95	$9,137.50
Revenue			
Membership Fees	$1,112.46		
Life Memberships (300 ea)	$900.00		
Subscriber Fees	$336.00		
Kewa Back Issue Sales (incl 19th cent Notes)	$66.02		
Donations	$33.00		
Book Publication Sales		$234.43	
Total Revenue	$2,447.48	$234.43	$2,681.91
Expenditures			
Kewa Printing	$722.56		
Kewa Mailing	$525.57		
Other mailing	$9.72		
Speaker Dinner, Cookies, Juice	$93.29		
Museum Rental for Meetings	$225.00		
2006 Symposium Deposit			
Other Expenses	$13.34		
Total Expenses	$1,589.48	$0.00	$1,589.48
Book Balances	$ 2,843.55	$ 7,376.38	$10,219.93
Total Bank Balances Dec 31, 2006 from Dec 2006 Bank Statements	$2,843.55	$7,376.38	
Cash On Hand	$10.00		